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A STUDY OF ATTITUDINAL CHANGES OF TEACHERS AND PUPILS TOWARD EDUCATIONAL TELEVISION AND AN ANALYSIS OF ATTITUDES OF VARIOUS GROUPS TOWARD EDUCATIONAL TELEVISION.

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THE PURPOSE WAS AN INVESTIGATION OF THE EFFECTS OF 1 YEAR'S UTILIZATION OF EDUCATION TELEVISION UPON THE ATTITUDES OF A SELECTED SAMPLE OF TEACHERS AND PUPILS AT BOTH THE ELEMENTARY AND SECONDARY LEVELS. ATTITUDE SCALES WERE DEVELOPED FOR OBJECTIVE MEASUREMENTS OF THE ATTITUDES OF PUPILS AND TEACHERS. EACH SCALE ENCOMPASSED (1) CURRICULAR CONTENT, (2) INSTRUCTIONAL EFFECTIVENESS, (3) ROLE OF THE TEACHER, AND (4) ROLE OF THE PUPIL. THE SCALE ITEMS REQUIRED FORCED-CHOICE ANSWERS. THEY WERE TESTED AND REVISED. THE SCALES WERE ADMINISTERED BEFORE AND AFTER TELEVISION PRESENTATIONS TO 1,633 ELEMENTARY PUPILS, 1,487 SECONDARY PUPILS, AND 401 TEACHERS FROM SOUTHWESTERN INDIANA AND SOUTHEASTERN ILLINOIS. USABLE DATA WERE RECEIVED FROM 10 ELEMENTARY AND 10 SECONDARY SCHOOLS. TOTALS AND MEANS WERE COMPUTED FOR EACH SCHOOL, GRADE, AND SUBJECT AREA. DATA ON TEACHERS WERE PROCESSED TO DETERMINE (1) TOTAL SCORE, (2) GRADE LEVEL TAUGHT, SEX, TV SUBJECT TAUGHT, YEARS OF EXPERIENCE, RESPONSE TO EACH ITEM, AND (3) WHETHER OR NOT THE TEACHER HAD PARTICIPATED IN A COURSE OR WORKSHOP ON THE UTILIZATION OF INSTRUCTIONAL TELEVISION. CONFIDENTIAL FORMS WERE SENT TO 20 SCHOOL ADMINISTRATORS FOR THEIR RATING OF TEACHERS ON A 6-POINT SCALE. IN GENERAL, THE FINDS ARE CONSISTENT WITH THOSE OF OTHER ATTITUDINAL STUDIES IN INSTRUCTIONAL TELEVISION AND OTHER EDUCATIONAL INNOVATIONS. AFTER A 1-YEAR USE, RESULTS WERE EQUIVOCAL. (HB)

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OFFICE OF RESEARCH AND TESTING

INDIANA STATE COLLEGE, TERRE HAUTE, INDIANA

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TABLE OF CONTENTS

SECTION PAGE

INTRODUCTION 1

Background of the study. 1

Purposes of the study. 1

METHODS AND PROCEDURES 2

Construction of the attitude scales. 2

Reading difficulty 2

Pilot study 2

Data collection. 3

Treatment of the data 3

PRESENTATION AND ANALYSIS OF THE DATA. 3

Elementary pupils... 3

Secondary Pupils 5

Pupils by grade level 5

Pupils by subject taught by television 5

Pupils by sex. 8

Pupils by academic potential 8

Pupils by academic attainment. 8

Teachers by grade levels taught. 11

Teachers by amount of training in the utilization of television. 11

Attitude areas most accepted or rejected by teachers 14

Relationships between attitudes of teachers and the attitudes of their respective classes 14

Teacher attitudes as related to administrative ratings of teacher-effectiveness. 14

SUMMARY OF THE FINDINGS. 17

Elementary Pupils. 17

Secondary Pupils 17

Teachers 18

CONCLUSIONS AND IMPLICATIONS 19

LIST OF TABLES

TABLE PAGE

I. Comparisons of pre-test means with post-test means of all elementary classes and schools and of the pre-test means and post-test means of the total elementary group 4

II. Comparisons of pre-test means with post-test means of all secondary school classes and schools and of pre-test means with post-test means of the total secondary school group. 6

III. Comparisons of various combinations of post-test means of selected grade levels 7

IV. Comparisons of post-test means on the basis of the subject in which television was used in the secondary schools 7

V. Comparisons of the post-test means of the boys with the girls by grade level elementary and secondary 9

VI. Comparisons of post-test means of the low academic aptitude groups with the high academic patitude groups by grade level. . . . 10

VII. Comparisons of post-test means of groups at various levels on the basis of grades earned in the courses taught via television . . 10

VIII. Comparisons of elementary and secondary teachers' pre-test means with their post-test means. 12

IX. Elementary teachers vs. secondary teachers. 12

X. Comparisons of means of groups of teachers who did and did not use television in their classrooms, and those who had and had not completed formal training in the utilization of television in the classroom. 13

XI. Areas of attitudes most accepted and rejected by teachers 15

XII. Comparisons of teacher attitudes toward ETV as related to teacher ratings by administrators 16

INTRODUCTION

Background of the Study. The rapid expansion and general acceptance of educational television as a mass medium of communication for instructional purposes creates the necessity of studying all aspects of the medium in order to determine its full impact and educational efficiency. Any investigation must take into consideration the two chief participants in the learning situation, the teacher and the pupil.

Since the classroom teacher has such a crucial role in the program of formal television teaching, it is important that we know its effects upon him. Some have suggested that participation in an instructional television teaching situation is as likely to result in alienation as in satisfaction. How do teachers feel about participating in an educational television teaching situation? Is the television teacher perceived as a partner or as a competitor? Is the framework of the televised presentation perceived as too confining and inflexible, or is the classroom teacher able to incorporate it smoothly into the course? Are initial attitudes likely to be modified by subsequent participation with the medium?

As for the pupils themselves, previous research has repeatedly demonstrated that students have achieved as well or slightly better in classes utilizing television as in those without. If the ultimate goal of educational television is improved instruction and enriched educational opportunity, it seems reasonable to inquire why the research has not shown significantly greater achievement gains in those situations where television has been extensively used. Perhaps the attitudes the pupils hold toward the medium affect his achievement. What seem to be the attitudes of pupils before participating in a class which utilizes television? Do these attitudes shift after prolonged experience with the medium? Do attitudes vary with grade level, sex, or with subject matter area involved?

Purposes of the study. Although many studies have been made in the broad area of educational television, few have concentrated upon attitudinal changes as a result of participating in instructional television. The most typical types of study are those which compare achievement of pupils who have utilized educational television with those who did not. Some have considered the technical and mechanical aspects, while others have been devoted to an evaluation of the television teacher, his methods, techniques, and organization.

This project was designed to study some of the non-achievement effects of educational television instruction during the first year of Midwest Airborne Television Instruction. More specifically, it was an investigation of the effects of one year's utilization of educational television upon the attitudes of a selected sample of teachers and pupils at both the elementary and secondary levels. Among the specific questions to which answers were sought were the following: (1) What are the attitudes of teachers and pupils toward instructional television prior to the utilization of the medium? (2) What are their attitudes toward instructional television after one year's use of the medium? (3) What attitudinal changes take place after using television in the classroom for a year? (4) Are the attitudes and attitudinal changes of pupils related to academic attainment, sex, grade level, or subject matter presented via television? (5) Are the attitudes and attitudinal changes of teachers related to grade level taught, ratings by administrators, or participation in formal training in the utilization of the medium? (6) Is there a relationship between the attitudes of the teacher and the attitudes of his pupils toward ETV? (7) Are there certain aspects of ETV that are more favorably accepted or more definitely rejected?

METHODS AND PROCEDURES

Construction of the attitude scales. The first phase of the project was the development of scales by which attitudes could be objectively measured. Scale development was supervised by the Television Research Committee of Indiana State College, which is composed of the Director of Research, the Dean of the School of Education, the Chairman of the Department of Education and Psychology, the Principal of the Laboratory School, the M.P.A.T.I. Area Coordinator, and faculty representatives from Social Sciences, Education, and other Academic departments.

The development of the pupil scales was accomplished through the cooperative efforts of the faculty and pupils of the Indiana State College Laboratory School and the teachers and pupils of the Evansville, Indiana, public schools. The elementary and secondary teachers of the Laboratory School drafted a pool of items suitable in content and reading level for upper elementary and secondary school pupils. The TV Research Committee followed similar procedures in constructing appropriate items for use with teachers. This committee then went through a process of screening, revising, editing, and organizing items into three tentative scales.

Classroom activities covered in each scale included the following:

I. Curricular Content--items pertaining to specific aspects of the subject matter, objectives, course offerings, and the like;

II. Instructional Effectiveness--items geared directly to the teaching-learning process and general teaching skills or the teaching act;

III. Role of the Teacher--items having to do with the security of the teacher, or conversely, having to do with threats to the teacher;

IV. Role of the Pupil--items referring to traits or developments of the pupils involving such things as attitudes, skills, habits, and overall impact of TV on the pupil.

The scale items require forced-choice answers, by which the respondent indicates that he "strongly agrees," "agrees," is "undecided," "disagrees," or "strongly disagrees" with the statements.

Reading difficulty. All three scales were examined for level of reading difficulty. The Dale-Chall formula was used, counting "television," "TV," and "instructional" as familiar words. It was found that the elementary form was at the 5th-6th grade level, the secondary form was at the 7th-8th grade reading level, and the teacher form at the 11th-12th grade reading level.

Pilot study. Preliminary forms of the three scales were then administered to 124 elementary pupils, 200 secondary pupils, and 61 teachers in the Evansville, Indiana public schools, and to 123 elementary pupils, 221 secondary pupils, and 50 teachers in the Indiana State College Laboratory School. The Evansville pupils and teachers had been participating in the Southwestern Indiana Educational Council's educational television program for three years, while the Laboratory School pupils and teachers had had no previous experience with the medium in the classroom. It was felt that if an item discriminated between the two groups, it possessed sufficient validity to justify inclusion in the scales. Such discriminative power was determined by an item response tabulation. Final forms of the three scales were then developed and printed, ready for use. These final forms have the following characteristics:

	Number of Items:	Most Negative Score Possible	A 100% "undecided" score	Most positive Score Possible
Elementary Form:	26	26	78	130
Secondary Form:	34	34	102	170
Teachers' Form:	42	42	126	210

Data collection. During the week of September 4, 1961, before educational television instruction had begun in the schools, the scales were administered to 1,633 elementary pupils, 1,487 secondary pupils, and 401 teachers in the schools of southwestern Indiana and southeastern Illinois. At the conclusion of a school year of television instruction the scales were administered again to the same groups. Because of installation problems and delays, mechanical difficulties, time, and scheduling conflicts or reception problems, a number of the schools tested in the fall were unable to enter the ETV program at its inception or to remain with the program throughout the year. These schools were eliminated from the study. Usable data, both pre-TV and post-TV questionnaires, were received from 10 elementary and 10 secondary schools.

Treatment of the data. As mentioned above, only those subjects were included who completed both attitude questionnaires. Therefore, the first step was that of matching pre- and post-test scales and eliminating those for whom two scores were not available. Each questionnaire was hand-scored and totals and means were computed for each school, grade, subject matter area. For further analysis, the following data were punched into IBM cards for each student's questionnaire: total score, school, grade level, sex, TV subject, IQ level, TV course grade, and response to each item. For each teacher's questionnaire, the following data were punched into IBM cards: total score, grade level taught, sex, TV subject taught, years of experience, response to each item, and whether or not the teacher had participated in either a course or workshop in the utilization of instructional television. A confidential form was sent to each of the twenty participating schools, listing the teachers and requesting that the administrator rate each teacher on a six-point scale. Those teachers falling in the lowest two categories were classified as below average; those in the middle, average; and those in the top two categories, above average teachers.

The major statistical technique employed was the t-test of significance of difference between pre-TV means and post-TV means of the various groups and sub-groups in the study. Where other approaches were used, the explanation appears with the data.

PRESENTATION AND ANALYSIS OF THE DATA

Elementary pupils. Table I, on page 4, shows the results of comparing the pre-TV mean score with the post-TV mean score of every elementary school and class in the study, as well as the means of the total elementary group. For the total group of elementary pupils, no significant shift in attitudes toward educational television was found. The average elementary school pre-test score was matched almost exactly by the average elementary school post-test score. The means fell slightly on the positive side of the mid-point of the continuum. On the basis of individual classes at the elementary level, it is noted that seven had significantly higher post attitude scores (.05 or .01 per cent level), whereas six classes were significantly higher on the pre-test. The remaining 14 classes revealed no significant differences between pre and post-test scores.

TABLE I

COMPARISONS OF PRE-TEST MEANS WITH POST-TEST MEANS OF ALL ELEMENTARY CLASSES AND SCHOOLS, AND OF THE PRE-TEST MEANS AND POST-TEST MEANS OF THE TOTAL ELEMENTARY GROUP

Elementary Schools	Grade Levels	N	Pre-test Mean	Post-test Mean	Difference	SE_{diff}	t	Level of significance
E - 1	4	43	88.05	84.58	- 3.47	1.49	2.329	.05 (pre)
	5	23	94.22	98.09	+ 3.87	2.066	1.873	.10 (post)
	6	32	90.94	77.63	-13.31	2.827	4.710	.01 (pre)
E - 2	4	35	88.06	80.63	- 7.43	3.752	1.980	--
	5	37	85.54	85.86	+ .32	1.924	.166	--
	6	26	90.73	76.38	-14.35	2.255	6.450	.01 (pre)
E - 3	4	36	82.25	90.75	+ 8.50	1.870	4.545	.01 (post)
	6	26	86.12	87.73	+ 1.61	2.730	.590	--
E - 4	5	65	77.92	75.85	- 2.07	1.960	1.056	--
E - 5	3	6	83.67	76.83	- 6.84	5.320	1.286	--
	4	29	82.55	84.83	+ 2.28	2.730	.835	--
	5	32	82.19	80.53	- 1.66	2.597	.640	--
	6	30	78.70	84.90	+ 6.20	3.210	1.930	.10 (post)
E - 6	4	48	87.46	93.00	+ 5.54	1.904	2.900	.01 (post)
	5	56	93.63	97.66	+ 4.03	1.978	2.035	.05 (post)
	6	78	83.29	77.94	- 5.35	1.653	3.240	.01 (pre)
E - 7	4	57	81.58	78.89	- 2.69	2.410	1.116	--
	5	54	83.95	71.83	-12.12	1.788	6.770	.01 (pre)
	6	65	91.37	84.65	- 6.72	1.712	3.920	.01 (pre)
E - 8	4	28	78.36	78.61	+ .25	2.190	.114	--
	5	59	79.86	78.68	- 1.18	1.798	.657	--
E - 9	4	24	84.62	106.46	+21.84	1.650	13.240	.01 (post)
	5	32	86.12	90.00	+ 3.88	1.840	2.109	.05 (post)
	6	32	83.84	93.71	+ 9.87	2.530	3.901	.01 (post)
E - 10	4	51	84.25	86.96	+ 2.71	1.750	1.548	--
	5	46	81.37	77.93	- 3.44	2.005	1.716	--
	6	50	85.60	91.86	+ 6.26	1.720	3.639	.01 (post)
Total Elementary Pupils:		1109	84.88	84.12	- .66	.470	1.400	--

Secondary Pupils. Table II, on page 6, indicates the results of comparing the pre-test means with the post-test means of all secondary classes and schools in the study, as well as the pre-test means with the post-test means of the total secondary group. At the .01 level of confidence, the secondary pupils as a group shifted their attitudes in a negative direction toward airborne television instruction. The average secondary school pre-test score fell almost exactly at the mid-point of the continuum, and the average secondary school post-test score shifted significantly in a negative direction. Ten of the sixteen secondary classes were significantly higher (.01 level) on the pre-test; whereas the remainder did not differ significantly between pre- and post-test scores.

Pupils by grade level. Table III, page 7, shows the results of comparing various combinations of post-test means of the various grade levels. It was found that the third and fourth grade had significantly higher post-test score than the fifth grade. No significant differences were found between the post-test means of the third and fourth grades as compared with the sixth, or between the post-test means of the fifth grade as compared with the sixth grade. For the secondary level, no significant differences were found between the following post-test means: 7th and 8th as compared to the 9th; 7th and 8th as compared with the 10th; 9th as compared to the 10th; or 10th as compared to the 11th and 12th. However, the 11th and 12th post-test mean was found to be significantly higher than the 7th and 8th grade mean, and the 11th and 12th mean was also found to be significantly higher than the 9th grade mean.

Pupils by subject taught by television. Table IV, page 7, indicates the results of comparing the post-test means of various combinations of secondary school groups who participated in specific classes offered on airborne television. The post-test mean of the group that had foreign languages via television was significantly higher than the post-test mean of the group that had social studies. The group that had social studies via TV had significantly higher post-test score than the group that had science. Finally, the group that participated in the foreign language class offered on television had a significantly higher post-test score than the group that had the science TV course. In terms of degree of favorableness toward ETV, foreign language students were most favorable whereas the science students reacted least favorably.

TABLE II

COMPARISONS OF PRE-TEST MEANS WITH POST-TEST MEANS OF ALL SECONDARY SCHOOL CLASSES AND SCHOOLS AND OF PRE TEST MEANS WITH POST TEST MEANS OF THE TOTAL SECONDARY SCHOOL GROUP

Secondary Schools and TV subjects	N	Pre-Test Mean	Post-Test Mean	Difference	SE_{Diff}	t	Level of Significance
S-1							
8th gr. science	22	105.09	83.23	-21.86	3.56	6.14	.01 (pre)
S-2 Total	35	103.89	84.89	-19.00	5.41	3.51	.01 (pre)
10th gr.hist.	21	107.43	69.24	-38.19	3.73	10.24	.01 (pre)
11th gr.US hist.	14	98.57	108.36	+ 9.79	7.35	1.33	--
S-3 Total	44	102.11	94.61	- 7.50	2.33	3.22	.01 (pre)
10th gr. science	25	106.64	103.56	- 3.08	2.38	1.29	--
11th gr. US hist.	19	96.21	82.84	-13.37	3.76	3.56	.01 (pre)
S-4 Total	49	103.61	87.18	-16.43	2.89	5.69	.01 (pre)
10th gr. science	26	107.81	92.77	-15.04	2.63	5.72	.01 (pre)
11th gr. US.Hist.	23	98.87	80.87	-18.00	5.44	3.31	.01 (pre)
S-5 Total	70	102.19	89.51	-12.68	2.16	5.87	.01 (pre)
10th gr.World Hst.	18	100.78	88.56	- 4.66	2.62	4.66	.01 (pre)
11th gr. US Hist.	51	104.69	91.61	-13.08	2.83	4.62	.01 (pre)
S-6							
11th gr. US hist.	21	101.57	99.62	- 1.95	5.786	.33	--
S-7 Total	108	106.53	101.81	- 4.72	1.45	3.25	.01 (pre)
9th gr. hist.	27	104.33	99.19	- 5.14	1.31	2.92	.01 (pre)
9th-10th Spanish	26	102.27	104.00	+ 1.73	3.06	.57	--
11th History	55	109.62	102.05	- 7.57	2.04	3.71	.01 (pre)
-8							
8th gr. Science	29	92.55	87.76	- 4.79	3.61	1.33	--
S-9							
11th US Hist.	38	100.63	96.11	- 4.52	3.26	1.386	--
S-10							
8th gr. Science	54	103.30	77.02	-26.28	2.58	10.18	.01 (pre)
Total Secondary Pupils	470	102.97	91.37	-11.60	.96	12.08	.01 (pre)

TABLE III

COMPARISONS OF VARIOUS COMBINATIONS OF POST-TEST MEANS OF SELECTED GRADE LEVELS

Elementary	$\bar{X}$	$\bar{X}$	Diff	$S_{\bar{X}-\bar{X}}$	t	Level	
3 and 4 vs. 5	86.94	84.17	2.77	1.12	2.47	5%	(3rd and 4th Gr.)
3 and 4 vs. 6	86.94	84.68	2.26	1.21	1.87	--	
5 vs. 6	84.17	84.68	.51	1.23	.41	--	
7 and 8 vs. 9	86.34	89.17	2.83	2.88	.98	--	
7 and 8 vs. 10	86.34	90.37	4.03	3.87	1.04	--	
7 and 8 vs. 11 and 12	86.34	94.98	8.64	3.14	2.75	1%	(11th and 12th)
9 vs. 10	89.17	90.37	1.20	3.58	.34	--	
9 vs. 11 and 12	89.17	94.98	5.81	2.77	2.097	5%	(11th and 12th)
10 vs. 11 and 12	90.37	94.98	4.61	3.79	1.22	--	

TABLE IV

COMPARISONS OF POST-TEST MEANS ON THE BASIS OF THE SUBJECT IN WHICH TELEVISION WAS USED IN THE SECONDARY SCHOOLS

Subject Comparisons	$\bar{X}$	$\bar{X}$	Diff	$S_{\bar{X}-\bar{X}}$	t	Level
Social Studies vs Foreign Language	93.74	104.04	10.30	3.83	2.69	1% (foreign language)
Social Studies vs. Science	93.74	82.95	10.79	2.05	5.26	1% (social studies)
Foreign Language vs Science	104.04	82.95	21.09	3.86	5.46	1% (foreign language)

Pupils by sex. Table V, page 9, presents the results of testing the significance of difference of the post-test means of the boys with those of the girls for the various grade levels, both elementary and secondary. No significant differences were found between the sexes at any grade level.

Pupils by academic potential. Table VI, page 10, indicates the results of comparing the post-test means of the high and low academic aptitude groups of the various grade levels. The low academic aptitude groups are composed of those students who have recorded IQ's of 90 or below. The high academic aptitude groups were composed of those students who had recorded IQ's of 110 or above. At the 3rd and 4th grade levels, the low academic aptitude group had significantly more positive attitudes towards ETV after a year's experience with the medium. At the 5th grade level, the high academic aptitude group had more favorable attitudes than the low academic aptitude group. While the high academic aptitude group among the 6th graders had a higher post-test mean than the low academic aptitude group, the difference did not reach an acceptable level of confidence. At the secondary level, the low academic aptitude group had a more positive post-test mean than did the high academic aptitude group, but the difference did not reach an acceptable level of confidence.

Pupils by academic attainment. Table VII, page 10, presents the results of comparing the post-test means of the group that earned low grades in their TV course (D+ or lower) with those who earned high grades in their TV course (B-or higher). No significant difference was found between the post-test means of the high and low grades groups at the 3rd and 4th grade level. At the fifth grade level, the group that received the low grades expressed significantly more positive post-test attitudes toward ETV than did the group that earned the high grades. However, at the 6th grade level, the pattern was reversed: the group that earned the high grades had a significantly higher post-test mean than the group that earned the low grades. No significant difference was found between the post-test means of the two groups at the secondary level.

TABLE V
COMPARISONS OF THE POST-TEST MEANS OF THE BOYS WITH THE GIRLS BY GRADE LEVEL ELEMENTARY AND SECONDARY

Elementary Grade	Male $\bar{X}$	Female $\bar{X}$	Diff	$S_{\bar{x}-\bar{x}}$	t	Level
3 and 4	87.70	86.21	1.49	1.55	.96	--
5th	85.65	82.97	2.68	1.63	1.64	10% (boys)
6th	84.28	85.11	.83	1.91	.43	--
Secondary						
7th and 8th	88.61	83.80	4.81	4.59	1.05	--
9th	89.5	88.5	1.00	3.79	.26	--
10th	94.92	86.46	8.46	6.21	1.36	--
11th and 12th	94.46	94.27	.19	3.38	.05	--

TABLE VI
COMPARISONS OF POST-TEST MEANS OF THE LOW ACADEMIC APTITUDE GROUPS WITH THE HIGH ACADEMIC APTITUDE GROUPS BY GRADE LEVEL

Grade	Low $\bar{X}$ IQ	High $\bar{X}$ IQ	D	$S_{\bar{x}-\bar{x}}$	t	Level	
3rd and 4th	90.09	85.61	4.48	2.20	2.04	5%	(Low IQ Group)
5th	77.36	84.31	6.95	3.02	2.30	5%	(High IQ Group)
6th	83.43	88.55	5.12	2.80	1.83	10%	(High IQ Group)
Secondary	93.18	88.61	4.51	2.93	1.54	10%	(Low IQ Group)

TABLE VII
COMPARISONS OF POST-TEST MEANS OF GROUPS AT VARIOUS LEVELS ON THE BASIS OF GRADES EARNED IN THE COURSE TAUGHT VIA TELEVISION

Grade	Low Grades D+ or less $\bar{X}$	High Grades B- or more $\bar{X}$	D	$S_{\bar{x}-\bar{x}}$	t	Level
3 and 4th	89.57	86.4	3.17	2.20	1.44	--
5th	88.17	82.09	6.08	2.92	2.08	5% (Low Grade Group)
6th	80.47	88.22	7.75	3.39	2.29	5% (High Grade Group)
Secondary	92.26	90.21	2.05	2.64	.78	--

Teachers by grade levels taught. Table VIII, page 12, indicates the results of comparing the pre-test means with the post-test means of elementary and secondary teachers who did and did not actually utilize TV in their classes. No significant shift in attitudes toward ETV was found among the elementary teachers in the study, whether or not they had actually used the medium in their classrooms. The average elementary teacher pre-test score was on the favorable side of the mid-point of the continuum and the average post-test score fell at approximately the same point. At the secondary level, teachers had a significantly lower, or less favorable, mean attitude score on the post-test than on the pre-test, whether or not they had actually used the medium in their classrooms. The average secondary teacher score on the pre-test was somewhat higher than the average elementary teacher pre-test score, but the average secondary teacher post-test score fell back to the mid-point of the continuum. Table IX, page 12, presents the comparisons of elementary with secondary teachers, both those who did and those who did not use ETV themselves. No significant differences were found between the mean pre-test nor mean post-test scores of these two groups.

Teachers by amount of training in the utilization of television in the classroom. Teachers were divided into groups of those who had actually used television in their classes and those who did not, and also on the basis of whether or not they had completed either a course or workshop in the utilization of television in the classroom. The results of these comparisons appear in Table X on page 13.

No significant differences were found between the pre-test means and the post-test means of the following groups: non-TV users who had no TV course or workshop; TV users who had no TV course or workshop; and TV users who had completed a course or workshop. Comparing post-test means only, TV users were found to have significantly higher post-test scores (at the 5% level of confidence) regardless of whether or not they had completed the course or workshop. Moreover, the TV users who had completed the course or workshop had significantly higher scores (at the 10% level of confidence) than those using TV without completing either the course or workshop.

TABLE VIII

COMPARISONS OF ELEMENTARY AND SECONDARY TEACHERS' PRE-TEST MEANS WITH THEIR POST TEST MEANS

	N	Pre-test Mean	Post-test Mean	Diff	SE_{Diff}	t	Level of Significance
Elementary TV-teachers	68	136.44	134.02	- 2.42	1.49	1.62	--
Elementary Non-TV Teachers	14	132.21	133.57	+ 1.36	2.97	.46	--
Secondary TV-Teachers	20	139.75	128.60	-11.15	3.62	3.08	.01 (pre)
Secondary Non-TV Teachers	56	132.00	127.27	- 4.73	1.71	2.76	.01 (pre)

TABLE IX

ELEMENTARY TEACHERS VS. SECONDARY TEACHERS

	Elementary $\bar{X}_E$ (68)	Secondary $\bar{X}_S$(20)	D	$S_{\bar{x}-\bar{x}}$	t	Level
I. Using TV						
Pre-test =	136.44	139.75	- 3.31	4.53	- .73	--
Post-test =	134.02	128.6	+ 5.42	3.65	1.48	--
II. Not Using TV	$\bar{X}_E$ (14)	$\bar{X}_S$ (56)				
Pre-test =	132.21	132.00	+ .21	2.81	.07	--
Post-test =	133.57	127.27	+ 6.30	3.82	1.65	--

TABLE X

COMPARISONS OF MEANS OF GROUPS OF TEACHERS WHO DID AND DID NOT USE TELEVISION IN THEIR CLASSROOMS, AND THOSE WHO HAD AND HAD NOT COMPLETED FORMAL TRAINING IN THE UTILIZATION OF TELEVISION IN THE CLASSROOM

Teachers	Pre-test mean	Post-test mean	D	$s_{\bar{x}-\bar{x}}$	t	Significance
Non-TV users, no TV course	131.60	128.35	3.25	2.39	1.36	--
TV users, no TV course	135.40	131.03	4.37	2.31	1.89	--
TV users, TV course or workshop	142.78	137.74	5.04	4.76	1.06	--
	Post-test mean	Post-test mean	D	$s_{\bar{x}-\bar{x}}$	t	Significance
TV users, no TV course, vs. TV non-users, no TV course	137.74	128.35	9.39	3.69	2.54	at .05 level in favor of TV users with no TV course
TV users with TV course vs. TV users with no TV course	137.74	131.03	6.71	3.65	1.83	at .10 level in favor of TV users with TV course

Attitude areas most accepted or rejected by teachers. Items on the scales were classified into four somewhat arbitrary categories: curricular content, instructional effectiveness, role of the teacher, and role of the learner. Table XI, page 15, indicates the mean teacher ratings on the items in each of these four categories. A score of 1.00 would indicate a high degree of agreement; and 3.00 would indicate a mean score at the "undecided" point. At both the elementary and the secondary levels, the teachers seemed to be most critical of the curricular content of the televised instruction. Both elementary and secondary teachers were more acceptive of those aspects of ETV having to do with instructional effectiveness and the role of the teacher.

Relationships between the attitudes of teachers and the attitudes of their respective classes. One of the hypotheses of the study was concerned with whether attitudes of teachers toward ETV were related to those of their respective pupils. To test this hypothesis, post-test total scores of teachers and post test class average scores of their respective TV classes were correlated by the Spearman Rank Difference Method. The coefficients of correlation at the elementary level was .24, whereas the coefficient at the secondary level was .40. The indication is that there is only a slight degree of relationship between attitudes of teachers and their pupils as measured in this study.

Teacher attitudes as related to administrative ratings of teacher-effectiveness. Administrators were requested to rate the teachers on a six-point continuum ranging from "below average" to "very superior." These six categories were reduced to three by combining the bottom two into one called "low," the middle two into one called "middle," and the top two into one called "high." Comparisons of the pre-test and post-test means of these groups appear in Table XII, page 16. Pre-test mean scores for these three groups were similar, but there were differences, none reaching an acceptable level of confidence, in the post-test scores. The low group of teachers had an insignificantly higher post-test score; the middle group and the high group, insignificantly lower post test scores. Comparing post-test means only, no significant differences were found between the high group and the middle group, nor between the high and the low groups. However, the low group was found to have a significantly higher post-test mean score than the middle group. It appears that more favorable post-test attitudes as measured by this instrument were expressed by teachers who were rated as below average in performance by their administrators.

TABLE XI

AREAS OF ATTITUDES MOST ACCEPTED AND REJECTED BY TEACHERS

Area	No. of items	Average Score* TV Teachers (65) Pre	TV Teachers (65) Post	Non-TV Teachers (18) Pre	Non-TV Teachers (18) Post
Elementary					
I. Curricular Content	(5)	3.15	2.98	2.88	2.87
II. Instructional Effectiveness	(18)	3.32	3.28	3.17	2.98
III. Role of Teacher	(9)	3.20	3.33	3.23	3.10
IV. Role of Student	(10)	2.89	3.15	3.03	3.24
Secondary					
I. Curricular Content	(5)	3.15	2.96	3.03	2.91
II. Instructional Effectiveness	(18)	3.37	3.13	3.26	3.10
III. Role of teacher	(9)	3.26	3.08	3.11	3.06
IV. Role of student	(10)	3.31	2.97	3.10	2.95

*An average score of 1.00 is the most negative score possible, whereas an average score of 5.00 is the most positive score possible.

TABLE XII

COMPARISONS OF TEACHER ATTITUDES TOWARD ETV AS RELATED TO TEACHER RATINGS BY ADMINISTRATORS

Administrating Rating	N	Pre-Test $\bar{X}$	Post-Test $\bar{X}$	D	S_{pre}	S_{post}	$S_{\bar{x}-\bar{x}}$	t	Level
Low	24	137.17	137.75	+ .58	12.03	12.4	3.6	+ .16	--
Middle	80	133.85	129.23	-4.62	14.1	15.8	2.37	-1.95	10%
High	33	131.91	131.91	-3.97	13.8	14.8	3.52	-1.13	--

Post Test Comparisons

	$\bar{X}$ Low	$\bar{X}$ High	D	S_{low}	S_{high}	$S_{\bar{x}-\bar{x}}$	t	Level
Low vs. High (24) (33)	137.75	131.91	5.84	12.4	14.8	3.61	1.62	20% (low)
	$\bar{X}$ Low	$\bar{X}$ Middle						
Low vs. Middle (24) (80)	137.75	129.23	8.52	12.4	15.8	3.09	2.75	1% (low)
	$\bar{X}$ High	$\bar{X}$ Middle						
Middle vs. High (80) (33)	131.91	129.23	2.68	15.8	14.8	3.12	.85	--

SUMMARY OF THE FINDINGS

The following generalizations seem justified on the basis of the preceeding analysis of the data.

I. ELEMENTARY PUPILS

1. No significant shifts in attitudes toward educational television were found for the total group of elementary pupils in this study.

2. Of the twenty-seven elementary classes in the study, 14 had no significant difference between pre-test means and post-test means, 6 were significantly higher on the pre-test, and 7 were significantly higher on the post-test.

3. The average elementary pupil pre-test score was almost exactly matched by the average elementary pupil post-test score. Each score fell slightly on the positive side of the mid-point of the continuum.

4. The combined third and fourth grade group was found to have a significantly higher post-test score than the fifth grade. No significant differences were found between the post-test means of the third and fourth grades as compared to the sixth, or between the post-test means of the fifth grade as compared to the sixth.

5. After a year's experience with educational television, the low academic aptitude fourth grade pupils had significantly more favorable attitudes toward ETV than did the high academic aptitude fourth graders. At the fifth grade level, the high academic aptitude group had significantly more favorable attitudes than did the low academic aptitude group. While the high academic aptitude group among the sixth graders had a higher post-test mean than did the low academic aptitude group at that grade level, the difference did not reach an acceptable level of confidence.

6. Comparing the elementary groups which received high course grades with those groups receiving low grades, no significant difference was found between the post-test means at the 3rd and 4th grade level. At the fifth grade level, the group that received the low grades expressed significantly more positive post-test attitudes toward ETV than did those who earned low grades. At the 6th grade level, the pattern was reversed; the group that earned the high grades had a significantly higher post-test mean score than did the group that earned the low grades.

7. No significant differences in post-test means was found between the sexes at any elementary grade level.

II. SECONDARY PUPILS

1. The secondary school pupils in this study shifted their attitudes toward educational television significantly in a negative direction after one year's experience with the medium.

2. Of the 16 secondary classes in the study, 10 were significantly higher on the pre-test, whereas 6 did not differ significantly between the pre-test and post-test means.

3. The average secondary pupil pre-test score fell almost exactly at the mid-point of the continuum, with the average secondary pupil post-test score shifting significantly in the negative direction.

4. No significant differences were found between the following post-test means: 7th and 8th as compared to the 9th; 7th and 8th as compared with the 10th; 9th as compared to the 10th; or 10th as compared to the 11th and 12th. However, the 11th and 12th post-test mean was found to be significantly higher than both the 7th and 8th grade mean, as well as the 9th grade mean.

5. The post-test mean score of the secondary pupils who had foreign languages taught to them via television was significantly higher than the mean post-test score of the secondary pupils who had social studies via TV. Secondary social studies pupils had significantly higher scores than secondary science students. When the post-test mean score of the groups that had foreign languages via TV was compared to the post-test mean score of the group that took the TV science course, the foreign language group was found to have a significantly higher score.

6. Although the low academic aptitude group of secondary school students had a more positive post-test mean than did the high academic aptitude group, the difference did not reach an acceptable level of confidence.

7. No significant difference in post-test attitudes was found between those secondary students who earned high course grades and those who earned low course grades in their TV courses.

8. No significant differences in post-test means was found between the sexes at any secondary grade level.

III. TEACHERS

1. No significant shift in attitudes toward educational television was found for the elementary school teachers in this study.

2. The average elementary school teacher pre-test score was on the favorable side of the mid-point of the continuum, and the average post-test score fell at approximately the same point.

3. The secondary school teachers in this study shifted their attitudes toward educational television significantly in a negative direction after one year's experience with the medium.

4. The average secondary teacher pre-test score was somewhat more favorable than the average elementary teacher pre-test score, but the average secondary teacher post-test score fell back to the mid-point of the continuum.

5. Teachers in this study responded in similar fashion to the attitude scale regardless of whether or not they had utilized the MPATI educational television in their own classes.

6. No significant differences were found between the mean pre-test scores and the mean post-test scores of the elementary teachers as compared to the secondary teachers.

7. Teachers who utilized educational television in their classrooms and who had completed either a course or workshop in the utilization of TV had

significantly higher post-test scores than those teachers who had no TV utilization course or workshop and who did not use television in their classrooms.

8. When the post-test mean of the teachers who had completed a TV utilization course or workshop and who actually used TV in their classrooms was compared to the mean post-test score of the teachers who had no formal utilization course or workshop but who used TV in their classrooms, it was found that those teachers who had completed the formal utilization course or workshop had higher post-test scores, significant at the .10 level of confidence.

9. Teachers seemed to be most critical of the curricular content of the televised instruction, and more accepting of those aspects relating to instructional effectiveness and the role of the teacher.

10. Only a slight degree of relationship was found between the attitudes of the teachers and the attitudes of their respective pupils on the post-test of attitudes.

11. The most favorable post-test attitudes were expressed by those teachers who were rated as below average in performance by their administrators.

IV. CONCLUSIONS AND IMPLICATIONS

The findings of the study are, in general, consistent with the findings of other attitudinal studies both in areas of instructional television and other educational innovations. Before presenting the conclusions of the study, it seems feasible to indicate some of the limitations that perhaps are inherent in the study. The personnel in the schools included in the study were experiencing their first year of televised instruction. No doubt many of the teachers and pupils involved were inexperienced with and improperly oriented to educational television. Secondly, the educational television was recieved only through the M.P.A.T.I. program. With this being the first year of M.P.A.T.I. telecasts, mechanical, scheduling, and implementation problems were inevitable. These might have influenced attitudes unduly. Finally, there is the traditional reaction to change that undoubtedly enters into any type of study of attitudes.

Within these limitations, the following conclusions based on the findings of this study are warranted:

1. For the group as a whole, attitudes toward television instruction are not highly favorable nor decidedly negative either before or after a year's use of the medium. The overall attitudinal reaction was somewhat "neutral" before ETV, and it did not change significantly after the use of ETV. However, the evidence is clear that post attitudes of elementary teachers and pupils are more favorable toward ETV than are those of secondary teachers and pupils.

2. Grade level apparently plays little part in attitudes as there were no consistent trends. The lower elementary students were more favorable than upper elementary students; however, upper secondary students were more favorable than lower secondary students.

3. Attitudes of teachers are generally the same whether or not the teachers utilized the medium in the classroom. Secondary and elementary teachers not using TV but in the same schools with teachers using TV reacted in a manner similar to those teachers using TV. This was apparent on both pre- and post-measures of attitudes. It is likely that the non-TV users adapted or accepted the attitudes of the TV users.

4. There is some indication that in-service training in TV utilization has a favorable affect on attitudes. Teachers who had taken workshops or courses in instructional television were more favorably inclined toward ETV than teachers who had not completed such training. There is the possibility, however, that the teachers who enrolled in ETV courses were more favorably inclined toward TV to begin with.

5. There seems to be only a slight relationship between attitudes of pupils and those of their respective teachers. Other studies have revealed a higher relationship than was found in this study. The relationship was more pronounced at the secondary level than at the elementary level.

6. There is a strong indication that at the secondary level, attitudes of pupils are influenced by the subject in which educational television is used or by the way in which the subject was presented. Foreign language students were more favorable toward TV than social studies or science students. Those students who experienced TV in science classes had the least favorable attitudes at the end of the experiment.

7. Basically such factors as sex, academic potential, and academic attainment have little bearing on the attitudes of students toward ETV. There were no significant differences between the sexes at any grade level. In some instances, the low intelligence group had more favorable attitudes than did the high intelligence group; but in other cases the converse was true. At the elementary level, the low achieving students in the 5th grade were more favorable toward ETV than the high achieving 5th graders; however, at the 6th grade level the situation was reversed. Secondary students reacted the same toward ETV regardless of the grade earned in the TV course.

8. Both elementary and secondary teachers on pre- and post-testing reacted in similar fashion in the various categories as measured by the attitude scale. Items having to do with "instructional effectiveness" received the highest ratings; likewise items having to do with "the role of the teacher" were rated positively. The most pronounced area of rejection was "curricular content." All groups of teachers scored lower on the post-test than on the pre-test on those items having to do with curricular content.

9. To some extent there is a tendency for the poor teachers (as rated by their administration) to hold more favorable attitudes toward ETV than do teachers who are rated high. It may be that less effective teachers tend to rely on ETV to a greater extent than the effective teachers.

Do Not Open Unitl Told To Do So

EDUCATIONAL TELEVISION ATTITUDE SCALE

UPPER ELEMENTARY--GRADES 4-6

Directions

(Please follow along as your teacher reads the directions to you.)

Many students are attending classes this year in which some of the lessons are given by television. You may or may not be in a class that uses television. Whether your class uses it or not, we would like to know how you feel about television lessons. Please give your own opinion, not that of your classmates. If you do not understand a statement, ask your teacher to explain, then give your opinion. There are no right or wrong answers; just be honest and circle the answer that is the same as your feeling about television classes.

Fill in the following blanks:

Your name:---------- Age:----------

Your school:---------- Grade:----------

Boy or girl:----------

Are you now in a class in which television is used?----------

If so, in what subject or subjects?----------

Have you ever had television classes before this year?----------

If so, in what subjects----------

How many years before this year have you had television classes?----------

Do not write in these spaces:

1.---------- 3. ----------

2.---------- 4. ----------

If you strongly agree, circle "SA"---------- SA A U D SD

If you agree, circle "A"---------- SA A U D SD

If you are undecided or uncertain, circle "U"---------- SA A U D SD

If you disagree, circle "D"---------- SA A U D SD

If you strongly disagree, circle "SD"---------- SA A U D SD

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EDUCATIONAL TELEVISION ATTITUDE SCALE
Upper Elementary--Grades 4-6

Directions: Circle the response which is the same as your opinion.

SA A U D SD 1. I have better teaching in my TV classes than in some of my regular classes.

SA A U D SD 2. I am able to understand better with TV than in our regular classes.

SA A U D SD 3. The TV lesson gives me more new ideas than my regular class.

SA A U D SD 4. More lesson materials are used in the TV class than in our regular classes.

SA A U D SD 5. My school can offer more subjects when it uses TV.

SA A U D SD 6. TV classes make me want to study and work more than I usually do.

SA A U D SD 7. I learn to study better when we use TV in our classrooms.

SA A U D SD 8. The regular classroom teacher is not needed as much in a classroom using TV teaching.

SA A U D SD 9. It is not as important to listen to the TV teacher as it is to our classroom teacher.

SA A U D SD 10. If I have a question about the TV lesson, my regular teacher can help me with it.

SA A U D SD 11. TV lessons are not as interesting as regular classes.

SA A U D SD 12. The TV lesson is too hard for some students and too easy for others.

SA A U D SD 13. The TV lessons have too many facts for me to understand.

SA A U D SD 14. I enjoy having both a TV teacher and my regular teacher.

SA A U D SD 15. TV classes do not give us enough time to talk about interesting parts of the lesson.

SA A U D SD 16. TV classes cause students to ask many questions.

SA A U D SD 17. The children in my room like TV teaching.

SA A U D SD 18. Pupils pay less attention to the TV lessons than to their regular class lessons.

SA A U D SD 19. Some students misbehave in TV classes and prevent other students from hearing.

SA A U D SD 20. Pupils behave better during regular lessons than during the TV lessons.

SA A U D SD 21. Our work is more interesting when we have TV teaching in the classroom.

SA A U D SD 22. I learn more from watching TV than by looking at films or books

SA A U D SD 23. I learn more from books than I do from TV lessons.

SA A U D SD 24. Classroom TV helps my regular teacher.

SA A U D SD 25. My teacher is a better teacher since we have used TV.

SA A U D SD 26. My teacher likes using the TV lessons.

Do Not Open Until Told To Do So

EDUCATIONAL TELEVISION ATTITUDE SCALE

SECONDARY LEVEL--GRADES 7 - 12

Directions

Many students in Indiana will be using television instruction as a part of their class work this year. Perhaps you are one of them. Whether you will use it in your class or not, we would like to have your opinion on the statements listed in this booklet. Please give your own opinion, not that of your classmates. If you do not understand a statement, ask your teacher to explain then give your opinion. There are no right or wrong answers to these statements; just be entirely honest and give your opinion.

You should answer the statements as they apply to you in your school. The answers you may choose are:

If you strongly agree, circle "SA" ---------- SA A U D SD
If you agree, circle "A"---------- SA A U D SD
If you are undecided or uncertain, circle "U"---------- SA A U D SD
If you disagree, circle "D"---------- SA A U D SD
If you strongly disagree, circle "SD"---------- SA A U D SD

After reading each statement, circle the response which best represents your feelings about the statement.

Please provide the following information:

Your name:---------- Age --------Boy or Girl----------

Name of your school:---------- Your grade level------

Have you ever had a course or courses by TV before?---------- If so, in what subject or subjects?---------- In what city? ----------

If you are going to use television in your classes this year, list the subjects in which it will be used:

----------, ----------, ----------,

Do not write in these spaces:

1.---------- 3.----------

2.---------- 4.----------

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EDUCATIONAL TELEVISION ATTITUDE SCALE

Secondary Level--Grades 7-12

Please circle the response which is the same as your opinion.

SA A U D SD 1. Instructional television provides better teaching than I usually get.

SA A U D SD 2. Instructional television creates more discipline or class control problems than we normally have.

SA A U D SD 3. Instructional television offers better visual aids--films, filmstrips, charts, graphs, pictures, maps--than we have had.

SA A U D SD 4. It is difficult for me to get answers to questions I have about the TV lesson.

SA A U D SD 5. Instructional television enriches our class lessons, making them more informative and interesting.

SA A U D SD 6. The TV teachers are better teachers than our regular classroom teachers.

SA A U D SD 7. It is not easy to watch and concentrate on the television presentation.

SA A U D SD 8. My school can provide courses through television not offered now.

SA A U D SD 9. Television instruction encourages me to do more outside study and research on my own.

SA A U D SD 10. My classroom teacher (s) seems less important to me when instructional television is used.

SA A U D SD 11. It is easier to learn from the television lessons than from the usual lessons.

SA A US D SD 12. I am encouraged to participate more actively in learning through use of instructional television.

SA A U D SD 13. All of the content of a course, whether it be arithmetic, biology, government, etc., should be presented through television.

SA A U D SD 14. Television instruction helps me to feel more confident in my ability to do well in a course.

SA A U D SD 15. Students in my classes do not take an active part in the discussions before or after the TV lessons.

SA A U D SD 16. I learn less using television than I do in a usual class.

SA A U D SD 17. The television teacher does not stimulate my interests in doing individual projects.

SA A U D SD 18. I dislike not being able to ask the television teacher questio

SA A U D SD 19. I would like to discuss with the TV teacher points with which I do not agree.

SA A U D SD 20. My classes are less useful to me when we must share the time of the regular classwork with the television lesson.

SA A U D SD 21. The pictures, films, maps, and other visual aids that we have in regular classes are more useful than those used on TV.

SA A U D SD 22. In classes requiring much explanation and illustration, the use of television results in my learning less.

SA A U D SD 23. When instructional television is used, I feel less responsible for preparing my assignments.

SA A U D SD 24. The television lessons tend to be too factual.

SA A U D SD 25. Instructional television avoids controversial topics which we would generally discuss in our regular classroom.

SA A U D SD 26. Since a new television lesson is offered each day, we are unable to complete our discussions of topics needing further explaining.

SA A U D SD 27. I take notes better in television classes than in regular classes.

SA A U D SD 28. Television classes better prepare me for college study than do our regular classes.

SA A U D SD 29. Homework and textbook assignments aid the television lessons and are closely related to them.

SA A U D SD 30. The TV lessons are extremely beneficial for the below average students.

SA A U D SD 31. I like for my own teacher to decide what we study, rather than the television teacher.

SA A U D SD 32. I do not have much confidence in the television teacher, since I don't know him.

SA A U D SD 33. If I could choose, we would not use instructional television.

SA A U D SD 34. I feel close to my TV teacher, and have confidence in him.

Do not Open Until Told To Do So

EDUCATIONAL TELEVISION

TEACHER ATTITUDE INVENTORY

Introduction

Many teachers in Indiana will be using television instruction in conjunction with their class work this year. Perhaps you are one of them. Whether you will use it in your classes or not, we would like to have your opinion relative to its advantages, uses, and/or limitations. Even though you have not yet used television instruction, no doubt you have formed some opinions concerning it. Teachers in Indiana, some who will be using educational television and others who will not be using it,will be asked to complete the inventory at this time.

Directions

This inventory consists of a number of statements designed to sample teacher opinions about educational television. There are no right or wrong answers. What is wanted is your own individual feeling about the statements. Read each statement and decide how YOU feel about it. Then circle the response that best represents your opinion.

Please complete the blanks at the bottom of the page, giving all information requested:

Name:---------- Date--------- School----------

Grades and/or Subjects you teach---------- Age----------

Years of teaching experience----------

Will you be using educational television this year? Yes_____ No _____

If yes, what subject or subjects will you be using Educational Television?

----------, ----------, ----------

Please circle the response which best represents your opinion to the following statements.

If you strongly agree, circle "SA"---------- SA A U D SD

If you agree, circle "A"---------- SA A U D SD

If you are undecided or uncertain, circle "U"---------- SA A U D SD

If you disagree, circle "D"---------- SA A U D SD

If you strongly disagree, circle "SD"---------- SA A U D SD

EDUCATIONAL TELEVISION ATTITUDE SCALE FOR TEACHERS

SA A U D SD 1. Educational television is designed to provide higher quality instruction in the classroom.

SA A U D SD 2. Educational television is effective for instructing large classes.

SA A U D SD 3. The classroom teacher becomes secondary to the TV teacher in classes utilizing educational television.

SA A U D SD 4. The classroom teacher's load (preparation, presentation, etc.) is reduced in classes using educational television.

SA A U D SD 5. Educational television is effective in providing for the wide range of individual differences of pupils.

SA A U D SD 6. Educational television tends to standardize school curricula.

SA A U D SD 7. Educational television seriously reduces personal relations between classroom teachers and pupils.

SA A U D SD 8. Educational television increases the tasks of the classroom teacher.

SA A U D SD 9. Educational television enhances the role of the classroom teacher.

SA A U D SD 10. Classroom teachers can readily adapt the classroom activity to the scheduled TV lesson.

SA A U D SD 11. Technical and mechanical problems of bringing educational television into the classroom are minimal.

SA A U D SD 12. Educational television lessons provide greater motivation than regular classroom lessons.

SA A U D SD 13. Educational television reduces the need for other teaching materials.

SA A U D SD 14. Discipline problems decrease in classrooms utilizing educational television.

SA A U D SD 15. Educational television classes are more entertaining than educational.

SA A U D SD 16. Educational television classes have better subject-matter content than conventional classes.

SA A U D SD 17. The attention span of pupils is insufficient for an entire television lesson.

SA A U D SD 18. Educational television reduces student participation in classroom activities.

SA A U D SD 19. Pupils in classrooms having educational television develop skills in communication to a greater extent than do pupils in regular classrooms.

SA A U D SD 20. *Educational television improves study skills and habits* of the pupils.

SA A U D SD 21. Educational television classes are better organized than conventional classes.

SA A U D SD 22. Educational television makes it possible for schools to offer courses not possible otherwise.

SA A U D SD 23. Attitudes of pupils toward learning are generally more favorable in classes where educational television is being utilized.

SA A U D SD 24. Students using educational television have a better understanding of the course objectives than do students not using educational television.

SA A U D SD 25. Attainment of objectives is facilitated in those classrooms using educational television.

SA A U D SD 26. Evaluation is less complex in classrooms using educational television.

SA A U D SD 27. Critical thinking and problem solving ability of the pupils is developed to a greater extent in TV classrooms than in conventional classrooms.

SA A U D SD 28. Retention of learnings is improved through educational television.

SA A U D SD 29. Educational television results in a loss in teaching effectiveness by the classroom teacher.

SA A U D SD 30. Educational television results in a loss in the personal satisfaction the classroom teacher derives from teaching.

SA A U D SD 31. Classroom teachers plan and organize their lessons more effectively when they use educational television.

SA A U D SD 32. Educational television decreases the opportunity for discussion and clarification between students and the teacher.

SA A U D SD 33. TV classes are more valuable than regular classes for the student.

SA A U D SD 34. The classroom teacher can gain in teaching skills from observing the TV teacher.

SA A U D SD 35. Educational television provides little that could not be provided through films and other visuals.

SA A U D SD 36. Poor schools with poor teachers profit more from educational television rather than do good schools with good teachers.

SA A U D SD 37. Children see too much TV already.

SA A U D SD 38. Students feel that the TV teacher is more important than the regular classroom teacher.

SA A U D SD 39. Controversial issues can be effectively presented on educational television.

SA A U D SD 40. Educational television promotes the development of listening skills.

SA A U D SD 41. Educational television increases the utilization of other audio-visual aids by the classroom teacher.

SA A U D SD 42. A good lesson presented on educational television is more effective than the same lesson presented by the same teacher in a regular classroom.